Hogan & Hartson 81864.0025 Gouichi NISHIZAWA et al. R-T-B System Rare Earth Permanent... Serial No. 10/675,912 17 Drawing Sheets; Sheet 1 of 17

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ALLOY a1	LOW R ALLOY 2	23.6Nd-6Pr-0.3Dy-1.1B-0.05Cu-0.2Al-bal.Fe(wt. %)
ALLOY a2	LOW R ALLOY CON	FAINING Zr 23.6Nd—6Pr—0.3Dy—1.1B—0.05Cu—0.2AI—0.32Zr—bal.Fe(wt. %)
ALLOY a3	<u> </u>	LOW R ALLOY CONTAINING 2r 15.7Nd-6Pr-8.1Dy-1.1B-0.05Cu-0.2AI-0.15Zr-bal.Fe(wt. %)
ALLOY a4	LOW R ALLOY CON	TAINING Zr 23.9Nd—6Pr—1.1B—0.05Cu—0.2AI—0.15Zr—bal.Fe(wt. %)
ALLOY a5		LOW R ALLOY CONTAINING Zr 23 .6Nd-6Pr-0.3Dy-1.1B-0.05Cu-0.42AI-0.12Zr-bal.Fe(wt. %)
ALLOY a6		LOW R ALLOY CONTAINING Zr 23 .6Nd-6Pr-0.3Dy-1.1B-0.05Cu-0.12Zr-bal.Fe(wt. %)
ALLOY a7	<u> </u>	LOW R ALLOY CONTAINING Zr 27.9Nd - 0.1Dy - 1.1B - 0.03Cu - 0.05Al - 0.08Zr - bal.Fe (wt. %)
ALLOY a8		LOW R ALLOY CONTAINING Zr 23.7Nd-6Pr-0.2Dy-1.6B-0.3Cu-0.25Al-0.3Zr-bal.Fe(wt. %)
ALLOY b1	HIGH R ALLOY (WITHOUT B)	IIGH R ALLOY (WITHOUT B)
ALLOY b2	HIGH R ALLOY CONTA	NINING Zr (WITH B) 40.6Nd-0.5B-0.05Cu-5Co-0.2AI-3.1Zr-bal.Fe(wt. %)
ALLOY b3	нід Тионтио)	H R ALLOY F B AND AI)
ALLOY b4		HIGH R ALLOY (WITHOUT B) 35.1 Nd-0.03Cu-2Co-0.05Al-bal.Fe(wt. %)
ALLOY 55		HIGH R ALLOY (WITHOUT B) 40.6Nd-0.3Cu-20Co-0.25AI-bal.Fe(wt. %)

ב ה Hogan & Hartson 81864.0025 Gouichi NISHIZAWA et al. R-T-B System Rare Earth Permanent... Serial No. 10/675,912 17 Drawing Sheets; Sheet 2 of 17

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No.   COMPOSITIONS OF SINTERED BODIES(wt. %)   AMOUNT   LOW R   HIGHR   SINTERING   ROAD	_							_	/ 1	1											
COMPOSITIONS OF SINTERED BODIES(vt. %)  COMPOSITIONS OF SINTERED BODIES(vt. %)  Copmology  Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2At-0.5Co  1210  ALLOYS  Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2At-0.5Co-0.01Zr  Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2At-0.5Co-0.02Zr  Fe-24.9Nd-5.4Pr-0.4Dy-1B	CV	1	89	70	99	72	78	101	66	110	159	214	257	281	275	1	81	86	97	223	263
COMPOSITIONS OF SINTERED BODIES(wt. %)  COMPOSITIONS OF SINTERED BODIES(wt. %)  Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2At-0.5Co-0.012r  Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2At-0.5Co-0.02zr  Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2At-0.5C	Br+0.1 × HcJ	15.17	15.27	15.28	15.29	15.29	15.30	15.35	15.32	15.24	15.22	15.18	15.14	15.08	15.01	15.03	15.20	15.24	15.21	15.05	15.01
COMPOSITIONS OF SINTERED BODIES(wt. %)  COMPOSITIONS OF SINTERED BODIES(wt. %)  Copyrigh  Fe-24,9Nd-5,4Pr-0.4Dy-IB-0.05Cu-0.2Ar-0.5Co-0.01Zr  Fe-24,9Nd-5,4Pr-0.4Dy-IB-0.05Cu-0.2Ar-0.5Co-0.01Zr  Fe-24,9Nd-5,4Pr-0.4Dy-IB-0.05Cu-0.2Ar-0.5Co-0.02Zr  Fe-24,9Nd-5,4Pr-0.4Dy-IB-0.05Cu-0.2Ar-0.05Co-0.02Zr  Fe-24,9Nd-5,4Pr-0.4Dy	Нк/НсЈ (%)	38	57	79	96	96	96	97	97	98	63	92	97	86	98	54	97	97	98	96	97
COMPOSITIONS OF SINTERED BODIES(wt. %)  COMPOSITIONS OF SINTERED BODIES(wt. %)  Fe-24,3Nd-5,4Pr-0,4Dy-1B-0.05Cu-0.2Ar-0.5Co-0.012r  Fe-24,3Nd-5,4Pr-0,4Dy-1B-0.05Cu-0.2Ar-0.5Co-0.02Zr  Fe-24,3Nd-5,5Pr-0.3Dy-1B-0.05Cu-0.2Ar-0.5Co-0.02Zr  Fe-24,3Nd-5,5Pr-0.3Dy-1B-0.05Cu-0.2Ar-0.5Co-0.02Zr  Fe-24,3Nd-5,5Pr-0.3Dy-1B-0.05Cu-0.2Ar-0.5Co-0.02Zr  Fe-24,3Nd-5,5Pr-0.3Dy-1B-0.05Cu-0.2Ar-0.5Co-0.02Zr  Fe-24,3Nd-5,5Pr-0.3Dy-1B-0.05Cu-0.2Ar-0.5Co-0.02Zr  Fe-24,3Nd-5,5Pr-0.3Dy-1B-0.05Cu-0.2Ar-0.5Co-0.0Zr  Fe-24,3Nd-5,5Pr-0.3Dy-1B-0.05Cu-0.2Ar-0.5Cu-0.0Zr  Fe-24,3Nd-5,5Pr-0.3Dy-1B-0.05Cu-0.2Ar-0.5Cu-0.0Zr  Fe-24,3Nd-5,5Pr-0.3Dy-1B-0.05Cu-0.2Ar-0.5Cu-0.0Zr  Fe-24,3Nd-5,	HcJ (kOe)	12.59	13.28	13.29	13.34	13.33	13.31	13.64	13.75	13.85	13.32	13.43	13.56	13.71	13.88	11.44	12.33	12.58	12.81	12.39	12.55
COMPOSITIONS OF SINTERED BODIES(wt. %)  Fe-24,9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.012r  Fe-24,9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.012r  Fe-24,9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.032r  Fe-24,9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.032r  Fe-24,9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.032r  Fe-24,9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.032r  Fe-24,9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.032r  Fe-24,9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.032r  Fe-24,9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  Fe-24,9Nd-5.4Pr-0.4Dy-1B-0.05C	Br (kG)	13.91	13.94	13.95	13.96	13.96	13.97	13.99	13.94	13.85	13.89	13.84	13.78	13.71	13.62	13.89	13.97	13.98	13.93	13.81	13.75
COMPOSITIONS OF SINTERED BODIES(wt. %)  Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.01Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.02Zr Fe-24.9Nd-5.4Pr-0	SINTERING TEMPERA- TURE				_						1070%	2									
COMPOSITIONS OF SINTERED BODIES(wt. %)  Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.01Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.05Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.05Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.05Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.05Zr Fe-24.9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.Pr-0.4D	HIGH R ALLOYS	ALLOY b1		-		- F-1						ALLOY b1	+	ALLOY 52	-	ALLOY b1	,	ALLOY b1		ALLOY 51	ALLOY b2
COMPOSITIONS OF SINTERED BODIES(wt. %)  Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.01Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.01Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr Fe-24.9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.2Zr	LOW R ALLOYS	ALLOY a1				ALLOY a1	ALLOY a2		-		٠		ALLOY a1			ALLOY a1	ALLOY a1	+ ALLOY a2		1000	אררטן מן
No. COMPOSITIONS OF SINTERED BODIES(wt. %)  1 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.01Zr  2 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.01Zr  3 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.02Zr  4 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  5 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr  6 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.05Zr  7 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.05Zr  10 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.25Zr  11 Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.05Zr  12 Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.02Zr  13 Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr  14 Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.02Zr  15 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr  16 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr  17 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr  18 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr  19 Fe-24.9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr  10 Fe-24.9Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr	AMOUNT OF OXYGEN (ppm)	1210	1290	1160	1360	1090	1190	1110	1320	1240	1350	1400	1170	1220	1310	1888	1820	1920	1870	1800	1960
No. 1 1 2 2 2 3 3 3 3 2 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	COMPOSITIONS OF SINTERED E	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.01Zr	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.02Zr	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2AI-0.5Co-0.03Zr	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.05Zr	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.20Zr	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.25Zr	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.30Zr	Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2AI-0.5Co-0.05Zr	Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr	Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2AI-0.5Co-0.20Zr	Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2AI-0.5Co-0.25Zr	Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.30Zr	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Ai-0.5Co	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2AI-0.5Co-0.10Zr	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.20Zr	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2AI-0.5Co-0.25Zr	Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr	Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2AI-0.5Co-0.20Zr
	No.	1	2	က	4	ည	9	7	∞	6	10	=	12	13	14	15	16	11	18	19	20

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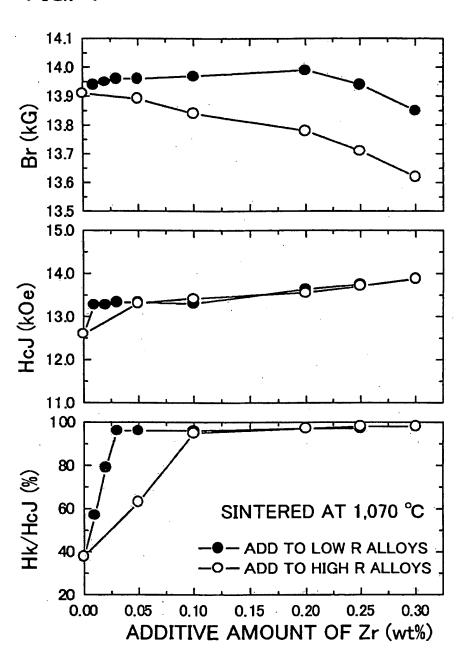
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					J	<i>,</i> ,	•							_	
Br+0.1 x HoJ	15.26	15.26	15.27	15.26	15.26	15.27	15.27	15.18	15.13	14.94	15.27	15.39	15.39	15.20	14.91
НК/НсJ (%)	98	91	94	94	92	92	95	96	6	98	95	96	95	97	96
HcJ (k0e)	13.24	13.23	13.19	13.19	13.23	13.28	13.55	12.96	12.78	12.58	11.20	12.49	12.60	13.27	13.00
Br (kG)	13.94	13.94	13.95	13.94	13.94	13.94	13.91	13.88	13.85	13.68	14.15	14.14	14.13	13.87	13.61
SINTERING TEMPERA- TURE								1050°C							
HIGH R ALLOYS	ALLOY b1			A110V L4	ALLOT D			ALLOY 61	+	ALLOY 62		ALLOY 61		ALLOY 63	
LOW R ALLOYS	ALLOY a1			ALLOY a1	ALLOY a2				ALLOY a1			ALI OY a5	+	ALLOY a6	
AMOUNT OF OXYGEN (ppm)	1210	1260	1180	1360	1110	1170	1200	1300	1370	1250	1220	1310	1140	1180	1230
COMPOSITIONS OF SINTERED BODIES(wt. %)	21 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co	22 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.01Zr	23 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.02Zr	24 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2AI-0.5Co-0.03Zr	25 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.05Zr	26 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr	27 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.20Zr	28 Fe-25.0Nd-5.4Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.05Zr	29 Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr	30 Fe-24.8Nd-5.5P-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.20Zr	31 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.01AI-0.5Co-0.10Zr	32 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.03AI-0.5Co-0.10Zr	33 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.05Al-0.5Co-0.10Zr	34 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.3Al-0.5Co-0.10Zr	35 Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.4AI-0.5Co-0.10Zr
So.	12	22	23	24	25	26	27	28	29	30	31	32	33	34	35

FIG. (

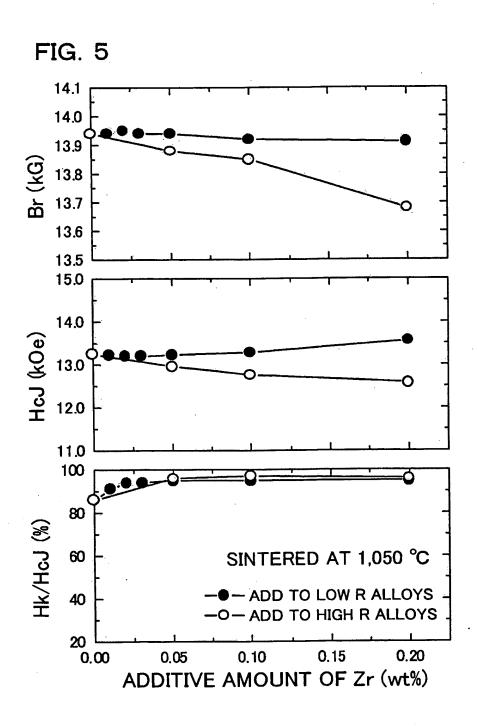
Hogan & Hartson 81864.0025 Gouichi NISHIZAWA et al. R-T-B System Rare Earth Permanent... Serial No. 10/675,912 17 Drawing Sheets; Sheet 4 of 17

FIG. 4



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FIG. 6

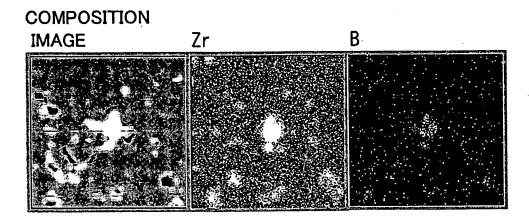
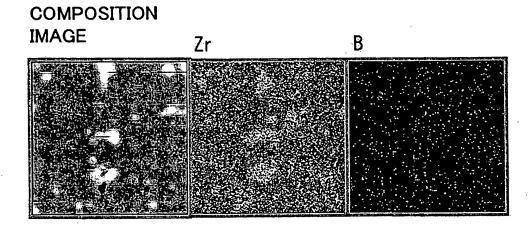
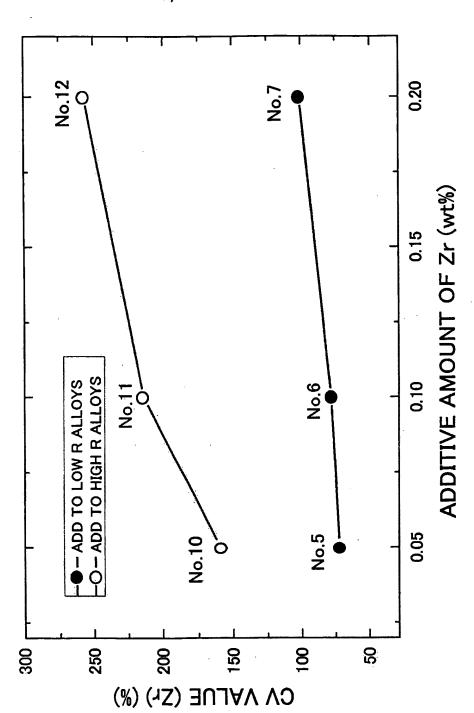


FIG. 7



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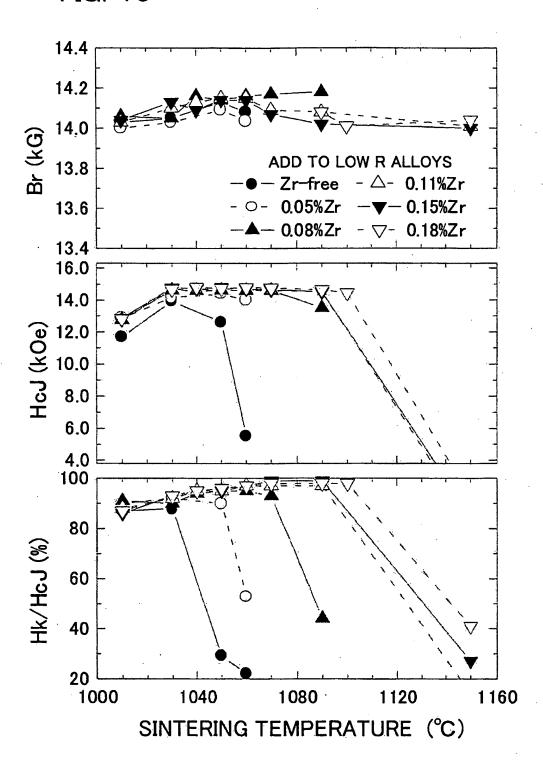
Hogan & Hartson 81864.0025 Gouichi NISHIZAWA et al. R-T-B System Rare Earth Permanent... Serial No. 10/675,912 17 Drawing Sheets; Sheet 8 of 17

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		AMOUNT	SINTERING	_				<u> </u>
No.	COMPOSITIONS OF SINTERED BODIES (wt. %)	OF OXYGEN (ppm)	TEMPERA- TURE	Br (kG)	HcJ (kOe)	Hk/HcJ (%)	Br+0.1 × HcJ	CV VALUE
36			1010℃	14.03	11.68	87	15,20	-
37		680	1030℃	14,05	13.92	88	15.44	-
38	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co	000	1050℃	14.13	12.64	29	15.39	-
39			1060℃	14.08	5.53	22	14.63	-
40			1010℃	14.00	12.84	90	15.29	-
41		670	1030℃	14.03	14.17	92	15.44	
42	Fe-24.9Nd-5,4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.05Zr	"	1050℃	14.09	14.37	90	15.53	<b>-</b> :
43			1060℃	14.04	14.00	53	15.44	
44			1010℃	14.06	12.76	91	15.33	-
45	·		1030℃	14.05	14.61	90	15.51	
46			1040℃	14.16	14.59	94	15.62	-
47	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.08Zr	870	1050℃	14,14	14.61	95	15.60	
48			1060℃	14.16	14.60	95	15.62	
49			1070℃	14:17	14.60	93	15.63	
50	_		1090℃	14.18	13,51	44	15.53	
51			1010℃	14.03	12.85	88	15.31	65
52		ŀ	1030℃	14.10	14.67	92	15.57	71
53		· ·	1040℃	14.13	14.66	95	15.59	77
54	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2AI-0.5Co-0.11Zr	700	1050℃	14.15	14.71	95	15.62	75
55			1060℃	14.15	14.69	97	15.62	72
56		1	1070℃	14.09	14.61	97	15.55	75
57			1090℃	14.08	14.49	97	15.53	81
58	·		1150℃	14.01	0,11	14	14.02	142
59	,	1.	1010℃	14.04	12.85	86	15.32	68
60			1030℃	14.13	14.72	93	15.60	75
61			1040℃	14.09	14.77	95	15.57	72
62	Fe-24,9Nd-5,4Pr-0,4Dy-1B-0.05Cu-0.2Al-0.5Co-0.15Zr	740	1050℃	14.14	14.79	95	15.62	80
63	TO Exist d. II T d. Iby I D d. Ibo C C C C C C C C C C C C C C C C C C C	1	1060℃	14.14	14.72	97	15,61	85 88
64			1070℃	14.07	14.66	99	15.53	91
65			1090℃	14.02	14.51	99	15.47 14.05	150
66		<del> </del>	1150℃	14.00	0.50	27 87	15.26	- 130
67			1010°C	13.98	12.81	93	15.54	<del>-</del> -
68	· ·	1	1030℃	1		95	15.61	<u> </u>
69			1040℃ 1050℃	14.13	14.80	95	15.52	
70	5 5		1060°C	14.18	14.72	97	15.65	<del></del>
71	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.18Zr	810	1060 C	14.18	14.78	98	15.51	<del>-</del>
72			1070°C	14.03	14.63	98	15.54	
73			1100°C	14.08	14.63	98	15.46	-
74		1	1150℃	14.01	1.75	41	14.22	<del>  -</del>
75			1 11000	14,04	1.73	<del></del>	, 7.22	

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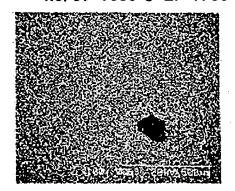
FIG. 10



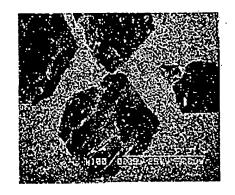
Hogan & Hartson 81864.0025 Gouichi NISHIZAWA et al. R-T-B System Rare Earth Permanent... Serial No. 10/675,912 17 Drawing Sheets; Sheet 10 of 17

FIG. 11

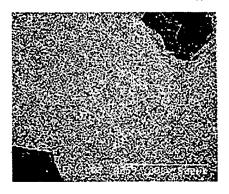
No. 37 1030°C Zr-free



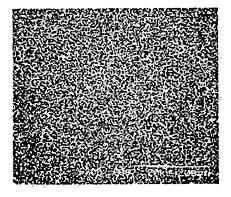
No. 39 1060°C Zr-free



No. 43 1060°C 0. 05%Zr



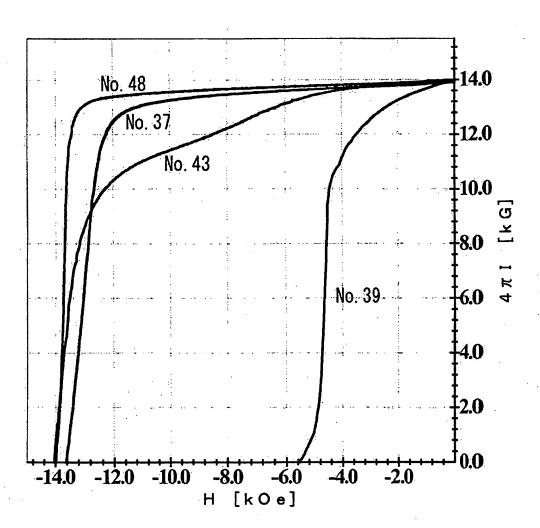
No. 48 1060°C 0. 08Zr



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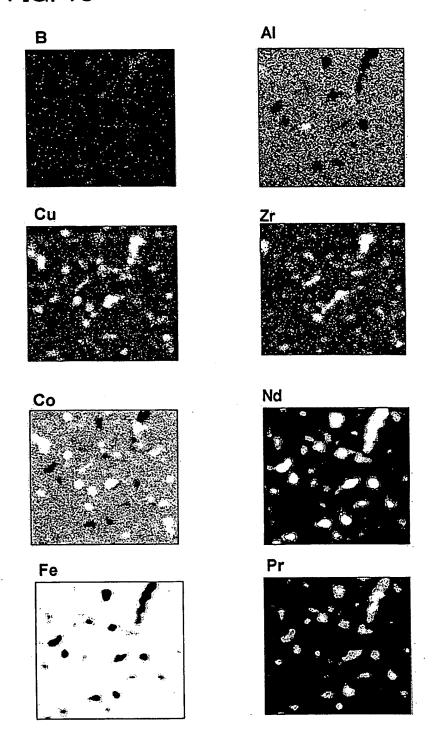
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FIG. 12



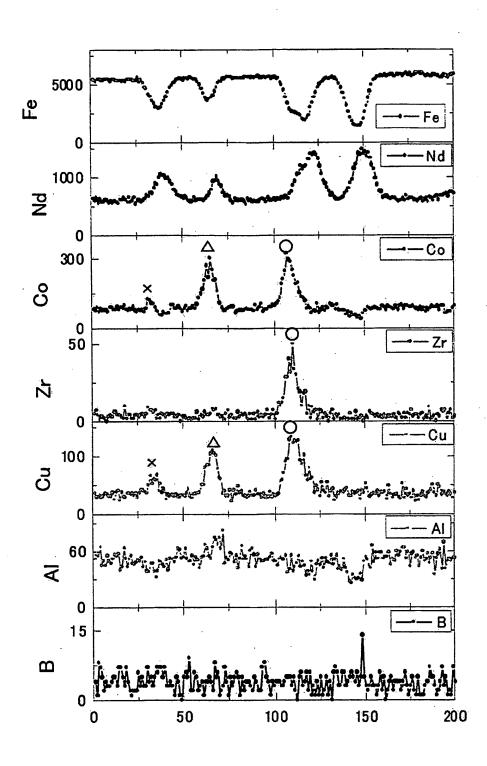
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Hogan & Hartson 81864.0025 Gouichi NISHIZAWA et al. R-T-B System Rare Earth Permanent... Serial No. 10/675,912 17 Drawing Sheets; Sheet 13 of 17

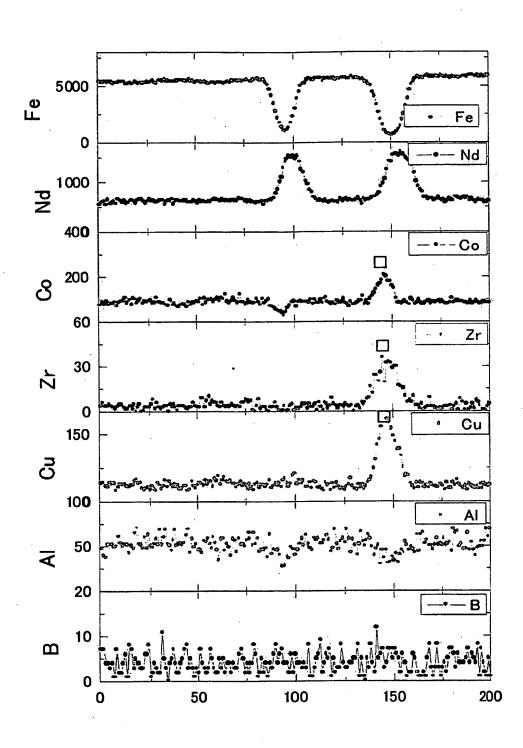
FIG. 14



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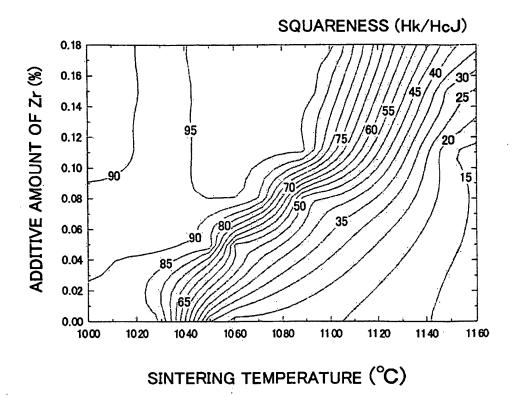
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FIG. 15



Hogan & Hartson 81864.0025 Gouichi NISHIZAWA et al. R-T-B System Rare Earth Permanent... Serial No. 10/675,912 17 Drawing Sheets; Sheet 15 of 17

FIG. 16



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Š	COMPOSITIONS OF SINTERED BODIES(wt. %)	LOW R ALLOYS	HIGH R ALLOYS	SINTERING TEMPERA- TURE	(kG)	HcJ (kOe)	Br HcJ Hk/HcJ (kg) (k0e) (%)	HcJ Hk/HcJ Br+0.1 × (kOe) (%) HcJ
76	76 Fe-25.0Nd-5.3Pr-1B-0.05Cu-0.2Al-0.5Co-0.13Zr	ALLOY a4		1060°C 14.42 12.62	14.42	12.62	86	15.68
11	77 Fe-23.2Nd-5.4Pr-2.1Dy-1B-0.05Cu-0.2Al-0.5Co-0.13Zr	ALLOY a1	, , , , , , , , , , , , , , , , , , ,	0,000 F	13.68	17.3	97	15.41
78	78 Fe-20.6Nd-5.4Pr-4.7Dy-1B-0.05Cu-0.2Al-0.5Co-0.13Zr ALLOY a2	ALLOY a2	ALLUT BI	2000	13.19	23.23	86	15.51
79	79 Fe-19.0Nd-5.3Pr-7.2Dy-1B-0.05Cu-0.2Al-0.5Co-0.13Zr	ALLOY a3		1090°C 12.37 30.51 94	12.37	30.51	94	15.42

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2	COMPOSITIONS OF SINTERED BODIES(wt. %)	AMOUNT OF OXYGEN (ppm)	LOW R ALLOYS	HIGH R ALLOYS	SINTERING TEMPERA- TURE	Br (kG)	HcJ (kOe)	Hk/HcJ (%)	Br HcJ Hk/HcJ Br+0.1 × CV (kG) (kOe) (%) HcJ VALUE	CV VALUE
8	80 Fe-28.3Nd-0.1Dy-1B-0.03Cu-0.05Al-0.2Co-0.07Zr	720	ALLOY a7	ALLOY b4	720 ALLOY a7 ALLOY b4 1070°C 14.62 13.1	14.62	13.1		98 15.93	7.7
J≅	81 Fe-26.9Nd-4.8Pr-0.2Dy-1.3B-0.3Cu-0.25Al-4Co-0.24Zr	980	ALLOY a8	ALLOY 65	980 ALLOY 88 ALLOY 65 1020°C 13.88 15.3	13.88	15.3		96 15.41	98